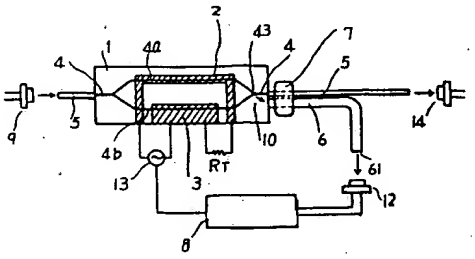
(54) **OPTICAL MODULATOR**
(11) **3-145623 (A)** (43) 20.6.1991 (19) JP
(21) Appl. No. 64-285408 (22) 1.11.1989
(71) FUJITSU LTD (72) NAOYUKI MEKATA(1)
(51) **Int. Cl⁵. G02F1/03**

PURPOSE: To prevent shortening of a transmission distance of an optical fiber from being caused by fetching a radiation light radiated from an optical multiplexing point of a branch optical waveguide as a monitor light, detecting a shift of an operating point by a photodetector and a signal processing control circuit and bringing it to feedback to an input signal power source.

CONSTITUTION: A radiation light radiated from an optical multiplexing point 43 of a branch optical waveguide 4a and 4b in the case an operating point is shifted is fetched as a monitor light, the shift of the operating point is detected by a photodetector 12 and a signal processing control circuit part 8 and it is brought to feedback to an input signal power source 13, adjustment of a DC bias is executed, and it is always held in a correct operating point. For instance, a signal light emitted from an optical fiber 4 is led into a signal light optical fiber 5, and a radiation light radiated from the optical multiplexing point 43 of the branch optical waveguide 4a and 4b is led into a monitor light optical fiber 6 and converted to an electric signal, and brought to feedback so as to stabilize the operating point by adjusting the DC bias of the input signal power source. By this method, such a problem as causes shortening of a transmission distance of the optical fiber is not generated without exerting any influence on optical power of the signal light.

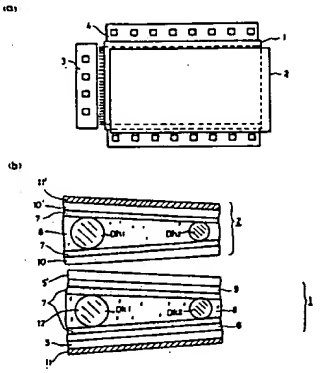


2: signal electrode. 7: holder. 9: semiconductor laser. 14: photodetector

(54) **LIQUID CRYSTAL DISPLAY DEVICE**
(11) **3-145624 (A)** (43) 20.6.1991 (19) JP
(21) Appl. No. 64-286477 (22) 1.11.1989
(71) FUJITSU LTD (72) YOSHIROU KATAYAMA(1)
(51) **Int. Cl⁵. G02F1/133,G02F1/1347,G09F9/35**

PURPOSE: To make the T-V characteristic and the chromaticity of a DSTN type liquid crystal display device uniform by allowing the cell thickness to have an inclination so that the cell thickness becomes thinner as it becomes farther away from the part being near a take-out part of a scanning electrode, in both a driving panel and a compensation panel.

CONSTITUTION: The cell thickness of a compensation panel 2 is thinned as it goes away from a connecting part of a scanning electrode 6 and a scanning circuit 3 in the same way as a driving panel 1. A fluctuation by the part of a T-V characteristic and chromaticity is caused by a fact that the scanning electrode of the driving panel consists of ITO of a transparent conductive material, and since its sheet resistance is high, a waveform of a pulse applied from the scanning circuit becomes round as it goes farther away from an electrode take-out part. Accordingly, in the driving panel, the cell thickness of a display cell is thinned as it goes away from the electrode take-out part, comparing with a display cell being near the electrode take-out part, and also, by varying the cell thickness of the compensation panel, as well in the same way as the driving panel, δ is corrected. In such a way, a variance of a threshold and uneven chromaticity in the panel are eliminated.

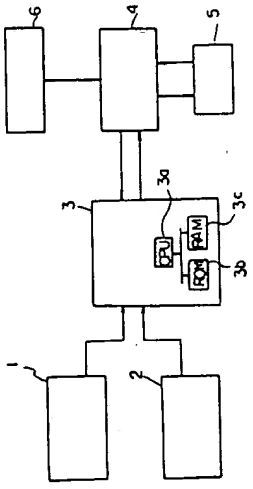


4: data circuit. 5,5',10,10': glass substrate. 7: oriented film. 9: data electrode. 11,11': polarizing plate. 12: spacer

(54) **ELECTRONIC EQUIPMENT**
(11) **3-145625 (A)** (43) 20.6.1991 (19) JP
(21) Appl. No. 64-282904 (22) 1.11.1989
(71) CANON INC (72) YOSHIYUKI ENDO(2)
(51) **Int. Cl⁵. G02F1/133,G09G3/36,H04N5/06,H04N5/66**

PURPOSE: To allow liquid crystal display to have stable and clear screen by setting a liquid crystal frame frequency so as to permit beat components which are generated by a measured alternating current frequency and a liquid crystal frame frequency not to exceed the prescribed value.

CONSTITUTION: The equipment is provided with a measuring means 1, which measures the frequency of an alternating current power source, and a measuring means 2, which measures an illuminating frequency in the environment the electronic equipment is placed. A display frame frequency changing means 4 is also a means which sets the display frame frequency of the liquid crystal display 6. The means 4 checks whether beat is generated or not by the set frequency between the alternating current power source frequency or the illuminating frequency. When the beat is generated, the display frame frequency is set at the frequency which dies not generate the beat by the instruction from a frequency comparing means 3. Thus, the liquid crystal display is stabilized and a clear screen is attained.



1: alternating current power source frequency measuring means. 2: illuminating frequency measuring means. 5: storing means. 6: display means